

Remarks

To overcome the rejection of claims 76-79, 81-86, 88-96 under Section 112, para. 1, enclosed is the declaration of Dr. Messing, which explains in detail with reference to the specification the support for the term "loosely packed, ordered array" in claims 76 and 97.

The rejection of claims 104 and 107 under Section 112, para. 2 has been overcome by amendment.

The provisional rejection on the grounds of nonstatutory obviousness-type double patenting of claims 76, 77, 79, 83, 86, 93, 95, 97, 99, 100, 102, 104, 107, 109, 114 over application Serial No. 11/436,718, of claims 76, 77, 79, 83-86, 88, 91-97, 9, 100, 102-104, 106-115 over application Serial No. 11/436009, of claims 76-79, 81-86, 88-115 over application Serial No. 10/310,173, of claims 76-79, 81-86, 88-115 over application Serial No. 11/436,717, and of claims 76-79, 81-86, 88-115 over application Serial No. 10/424,662 is overcome by the terminal disclaimers filed herewith.

The rejection of claims 76, 77, 79, 83, 86, 89-93, 96, 97, 99-104, 107, 110-115 under 35 U.S.C. 102(b) as being anticipated by Drmanac (EP 0392546A2) is overcome by the amendment to claims 76 and 97, adding that the particles in the ordered array are "in designated positions in accordance with a given outline, such that members of different pairs of adjacent particles are the same distance from one another." Particles in such arrangement are not shown in Drmanac, where the particles are "mixed and spread in a random monolayer" (Office Action pages 8-9) on a filter, and that HA's with the particles can be subdivided. The particles would still not be in an arrangement wherein "different pairs of adjacent particles are the same distance from one another."

The rejection of claims 76-79, 81-84, 86-115 are rejected under 35 USC Section 103(a) over Margel in view of Singer et al. and Gombinski et al. should be withdrawn. The Examiner concedes that Margel and Singer et al. do not disclose particles "in a loosely packed, ordered array" (claim 76) or an array "where the particles are not touching each other" (claim 97). Gombinski is relied on for these features, but Gombinski's earliest priority claim is to March 4, 1997 -- after the April 25, 1996 filing

of the provisional, priority application (which includes substantially the same specification as the present application) for the present application.

In conclusion, all claims are allowable.

Claim Listing:

The following claims replace all pending claims in this matter.

1-75 (canceled)

76. (Currently Amended) An array comprising several different particle attached ligands, wherein different particle-attached ligands are randomly distributed throughout the array, wherein different ligands are attached to different particles, and said particles are encoded with a ~~chemical~~ characteristic ~~which fluoresces~~ and that permits identification of the ligand or ligands attached thereto and, ~~while fluorescing~~, permits distinguishing the individual particles including distinguishing different particles from each other, and wherein said particles are in a planar defined area on the surface of a substrate and wherein said particles are affixed to said substrate in a loosely packed, ordered array with the particles in designated positions in accordance with a given outline, such that members of different pairs of adjacent particles are the same distance from one another.

77. (Previously Presented) The array of claim 76 wherein the particles are affixed to the surface of the substrate.

78. (Previously Presented) The array of claim 76 wherein the ligands are proteins.

79. (Previously Presented) The array of claim 76 wherein the ligands are nucleic acids.

80. (canceled)

81. (Previously Presented) The array of proteins according to claim 78, wherein different proteins bind to different cell types.

82. (Previously Presented) The array of proteins according to claim 78, wherein the proteins are monoclonal antibodies.

83. (Previously Presented) The array according to claim 79 wherein the nucleic acids are oligonucleotides of DNA or RNA.

84. (Previously Presented) The array according to claim 76, wherein the substrate is a semiconductor.

85. (Previously Presented) The array according to claim 84 wherein the substrate is an electrode.

86. (Currently Amended) The array according to claim 76, wherein the ~~chemical~~ characteristic is a chemical tag.

87. (canceled)

88. (Previously Presented) The array according to claim 77, wherein the particles are affixed to the substrate by chemical bonding.

89. (Previously Presented) The array according to claim 76, wherein the particles are exposed to liquid containing or suspected of containing an analyte.

90. (Previously Presented) The array according to claim 89, wherein the ligands are nucleic acids capable of hybridizing with one or more analytes contained within the liquid.

91. (Previously Presented) An article of manufacture composition comprising one or more of any of the arrays defined in claim 76 to 79, 81 to 86 and 88 to 90.

92. (Currently Amended) The article of manufacture of claim 91 wherein the location of each array on said substrate in combination with the ~~physical or chemical~~ characteristic indicates the types of ligands therein.

93. (Previously Presented) The array according to claim 86, wherein the chemical tag is a fluorescent oligonucleotide.

94. (Previously Presented) The array of claim 76 wherein the particles assume a hexagonal configuration.

95. (Previously Presented) The array of claim 76 wherein the size of the particles is one to two microns.

96. (Previously Presented) The array of claim 76 wherein the distances between the particles are the same.

97. (Currently Amended) An array comprising several different particle attached ligands, wherein different particle-attached ligands are randomly distributed throughout the array, wherein different ligands are attached to different particles, and said particles are encoded with a ~~chemical~~ characteristic ~~which fluoresces and~~ that permits identification of the ligand or ligands attached thereto and, ~~while fluorescing,~~ permits distinguishing the individual particle including distinguishing different particle from each other, and wherein said particles are in a planar defined area on the surface of a substrate and wherein said particles are affixed to said substrate in an ordered array with the particles in designated positions in accordance with a given outline, such that members of

different pairs of adjacent particles are the same distance from one another and
where the particles are not touching each other.

98. (Previously Presented) The array of claim 97 wherein the ligands are proteins.

99. (Previously Presented) The array of claim 97 wherein the ligands are nucleic acids.

100. (Previously Presented) The array according to claim 97 wherein the nucleic acids are oligonucleotides of DNA or RNA.

101. (Previously Presented) The array of claim 97 wherein the particles are encoded with a binary encoding system.

102. (Previously Presented) The array of claim 97 wherein the encoding is with oligonucleotides attached to the particles.

103. (Previously Presented) The array of claim 101 wherein the binary encoding is with oligonucleotides attached to the particles.

104. (Currently Amended) The array of claim 97 wherein the characteristic is ~~particles~~ are fluorescently encoded.

105. (Previously Presented) The array of claim 97 wherein the particles are made of polystyrene.

106. (Previously Presented) The array according to claim 97, wherein the substrate is a semiconductor.

107. (canceled)

108. (Previously Presented) The array of claim 97 wherein the particles assume a hexagonal configuration.

109. (Previously Presented) The array of claim 97 wherein the size of the particles is one to two microns.

110. (Previously Presented) The array of claim 97 wherein the distances between the particles are the same.

111. (Previously Presented) A substrate comprising, on its surface, two or more of the arrays defined in claim 97.

112. (Currently Amended) The substrate of claim 111 wherein the location of each array on said substrate in combination with the ~~physical or chemical~~ characteristic indicates the types of ligands therein.

113. (Previously Presented) The array of claim 76 wherein the particles are encoded with a binary encoding system.

114. (Previously Presented) The array of claim 76 wherein the encoding is with oligonucleotides attached to the particles.

115. (Previously Presented) The array of claim 113 wherein the binary encoding is with oligonucleotides attached to the particles.